
Zbl 495.05035

Babai, Laszlo; Chung, F.R.K.; Erdős, Paul; Graham, Ronald L.; Spencer, J.H.

On graphs which contain all sparse graphs. (In English)

Ann. Discrete Math. 12, 21-26 (1982).

Let $s(n)$ denote the maximum number of edges in a graph G which contains as subgraphs all graphs with n edges. The authors prove that for sufficiently large n $cn^2/\log^2 n < s(n) < c'n^2 \log\log n/\log n$ (here c and c' are constants). It is also proved that the minimum number of edges in a graph which contains all planal graphs with n edges is less than $cn^{3/2}$. The proofs are prohabilistic (which might not be a surprise) and short (10% of the paper is taken up by redoubtable list of authors).

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Classification:
05C35 Extremal problems (graph theory)

Keywords:
universal graphs; probabilistic method